AN AMERICAN REPRESENTATIVE OF CALAMAGROSTIS EPIGEJOS.

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Early in September last, Professor W. H. Sheldon, the distinguished philosopher of Yale University and a keen amateur botanist, brought me for identification a grass which he had found in sandy open woods by Long Pond in Harwich, on Cape Cod, not far from our summer homes. The grass, apparently of the genus *Calamagrostis*, was obviously not any species recognized in temperate eastern America, having very prolonged linear- to lance-cylindric strict panicles 2.3–3.3 dm. long, with the callus-hairs of the spikelets as long as the linear-lanceolate long-attenuate glumes, thus making the panicles suggest small inflorescences of *Phragmites* or of *Arundo*. On September 10 I visited the station, a flat area in dry sandy woods close to the small *Ammophila*-covered sand hills bordering Long Pond. The plant was in fruit, closely occupying an area perhaps 25 ft. (7 m.) square, and in the late afternoon light its slender erect panicles had a silvery sheen due to the long and abundant white hairs of the callus. The culms were solitary or few, 1.3–1.5 m. high, springing from long wiry rootstocks and stolons, and the stiff and harsh basal leaves were broad enough to be passed with ease as those of *Ammophila breviligulata* Fern.[1]

Upon unpacking my summer's collections I showed the strange grass to my student Mr. George Ledyard Stebbins, Jr., who is engaged in a detailed study of some boreal species of *Calamagrostis*, and he instantly recognized it as belonging with the Eurasian § *Epigeios* Koch., a very characteristic group of species heretofore apparently unknown in North America. Several European plants of this section have been put forward as species, but by Ascherson & Graebner they are reduced to two primary species: *C. epigejos* (L.) Roth and *C. Pseudophragmites* (Haller f.) Baumg. The plant of Cape Cod sands so closely simulates the silicolous *C. epigejos* of Europe that, upon casual examination, no differences are apparent; and the habitat of the Cape Cod plant is almost uncannily like that of the European, as stated by Ascherson & Graebner: "In dry woods, especially on sandy flat places, on sunny hills, on sandy banks often forming extensive stands."[2]

[1] Fernald, Rhodora, xxii. 71 (1920).

[2] "In trockenen Wäldern, besonders an sandigen flachen Stellen, auf sonnigen

In view, however, of the fact that the species of amphigenous genera and sections are so rarely identical on the sands of temperate eastern America and of continental Europe, it seemed worth while to study the *Calamagrostis* with special care; and at once minute, but highly significant differences appear. In *C. epigejos* the panicle is broader than in the Long Pond plant, in outline strongly suggesting large and fully expanded panicles of *C. cinnoides* (Muhl.) Barton, while the panicle of the new American plant has the slender outline of very long inflorescences of *Ammophila breviligulata*. In *C. epigejos* the glumes are 5–8 mm. long, in our plant narrower and only 4–5 mm. long. In *C. epigejos* the lemma is about 3 mm. long, with thin and translucent long teeth, in our plant about 2 mm. long and with opaque teeth; but, most important, the awn of the European plant is borne on the upper half of the lemma, just below the teeth, and projects straight forward; in the American plant the awn comes off from near the base of the lemma and is more arched or slightly divergent at base. It is thus apparent that, although simulating the Eurasian *C. epigejos*, the Cape Cod plant is a fundamentally distinct species, which is proposed as

CALAMAGROSTIS **arenicola**, n. sp., *C. epigejum* simulans; planta valde stolonifera, rhizomate stolonibusque subrigidis gracilibus; foliis basilaribus subrigidis valde elongatis griseis scabris 4–6 mm. latis; culmis solitariis vel binis erectis 1.3–1.5 m. altis; foliis caulinis 4 divergentibus, laminis superioribus 1.5–2 dm. longis deinde involutis; ligulis chartaceis ovatis obtusis 1.5–5 mm. longis; paniculis erectis valde exsertis lineari- vel lanceolato-cylindricis 2.3–3.3 dm. longis 1.5–4 cm. diametro, radiis confertis coarctatis 1–6 cm. longis scabris; spiculis stramineis confertis 4–5 mm. longis; glumis subaequalibus angustissime lanceolato-attenuatis 3-costatis, costa media scabra; lemmate lanceolato-ovato 2–2.3 mm. longo acuminato valde bifido apice opaco supra basin aristato; pilis glumas subaequantibus.—MASSACHUSETTS: forming a dense stand in a flat opening in sandy woods of *Robinia Pseudacacia*, western end of long Pond, Harwich, September 10, 1928, *Fernald*, no. 757 (TYPE in Gray Herbarium); station discovered by *W. H. Sheldon*.

For several reasons *Calamagrostis arenicola* is of very great interest. As the first known representative in eastern North America of a characteristic Eurasian section of the genus it is noteworthy and its occurrence in a habitat so similar to that of European *C. epigejos* is

Hügeln, an sandigen Ufern oft grosse Bestände bildend"—Aschers. & Graebn. Syn. ii.[1] 214 (1899).

significant. As an eastern American representative of a plant of European sands it takes a place with *Ammophila breviligulata*, *Polygonum glaucum* Nutt.[1] and *Cakile edentula* (Bigel.) Hook.,[2] all long confused with, but wholly distinct from the European *Ammophila arenaria* (L.) Link, *Polygonum maritimum* L. and *Cakile maritima* Scop.; or with *Corema Conradii* Torr. of the sands from New Jersey to Newfoundland as contrasted with *C. alba* (L.) Don. of Portugal and the Azores. But *Calamagrostis arenicola* is obviously a very rare plant; if it were not highly localized its handsome silvery panicles would long ago have been detected. In this extreme rarity it is certainly not comparable with *Ammophila breviligulata* and *Cakile edentula*, both common and dominant species of their habitats, nor with *Polygonum glaucum* and *Corema Conradii*, which, though not everywhere dominant, have many centers of abundance scattered over wide areas. In its excessive localization *Calamagrostis arenicola* is better compared with another Cape Cod endemic, *Juncus pervetus* Fern.[3] or with the Cape Cod colony of the two European heaths, *Calluna vulgaris* (L.) Hull and *Erica Tetralix* L. In 1926 the two latter were discovered by Professor Sheldon closely occupying a small area of damp but hardly wet *Polytrichum*-carpeted sand at the border of a pond in Chatham. The original colony had been seriously injured by the making of an artificial cranberry-bog, but, although many specimens (including 100 full sheets of each for the *Plantae Exsiccatae Grayanae*) have been taken from the colony, both species have increased phenomenally in two years and hundreds of seedlings are annually increasing the area covered.

The situation with *Juncus pervetus* is very different. This plant, one of the eastern American representatives of widely dispersed or highly localized species of Eurasia, Africa, Australia and western North and South America, was discovered in 1909. When I visited the plant in 1916 "it was in only one very limited station, a few rods long and perhaps a rod wide . . . . In this very restricted station, however, the plant was so prolific as quite to exclude all other species from the limited area." That was the condition of the colony in 1916. In October, 1927, there were scarcely a dozen culms and the species seemed on the very verge of extinction; but in August, 1928, Messrs. Ludlow Griscom and Henry K. Svenson

[1] See Fernald, Rhodora, xv. 69–71 (1913).
[2] See Fernald, Rhodora, xxiv. 23 (1922).
[3] Fernald, Rhodora, xix. 17 (1917).

found that it had not only held its own but considerably increased. Whether it will ever get back to the vigorous condition of 1916 it is too soon to predict. It is also impossible to guess whether the equally small Cape Cod colony of *Calamagrostis arenicola* will maintain itself and spread, like the Chatham colony of *Calluna vulgaris* and *Erica Tetralix*, or whether, like its other near neighbor, *Juncus pervetus*, it will quickly yield to the changes brought about by man and in a few years die out or barely maintain an existence. The one known colony of it is now vigorous and very dense but it is in precarious surroundings, with the railroad to Provincetown bounding one side, a wagon-road bounding another, and two summer cottages casting their shade upon it; and, it is not improbable, that in years to come garages will cover the space the rare plant now occupies. It is certainly to be hoped that more extensive and better protected colonies may be discovered, and, with attention now called to it, that it may be found to share with *Ammophila breviligulata* a wide range in open sandy woods of eastern America.

Gray Herbarium.

NOTES FROM THE HERBARIUM OF THE UNIVERSITY OF WISCONSIN—III.

Norman C. Fassett.

Talinum teretifolium and T. rugospermum. Ever since the description of *T. rugospermum*[1] there has been confusion between this species and *T. teretifolium*, as evidenced by misidentified specimens in herbaria, and by the range assigned to the latter species in Gray's Manual. Originally separated on characters in stigma and anthers, they may be distinguished by differences more readily seen.

a. Inflorescence branched 3–4, rarely only 2, times; branches bearing only bracts with branches or developed flowers in their axils; leaves, when pressed, flattened, 1–2 mm. broad, acute or rounded at tip, rarely mucronate.....*T. teretifolium* Pursh.

a. Inflorescence branched 2–3, rarely 4, times; branches with usually 1–4 pairs of bracts which apparently bear in their axils hidden aborted flowers; leaves, when pressed, terete, 0.5–1 mm., rarely 1.5 mm., broad, with an abrupt curved mucronate tip.....*T. rugospermum* Holzinger.

The sterile bracts of *T. rugospermum* are shown in the illustration[2] of this species in Britton and Brown's Illustrated Flora.

[1] Holzinger, Asa Gray Bull. vii. 117 (1899).

[2] Britton and Brown, Illustrated Flora, ed. 2, ii. fig. 1737 (1913).